Podcast Intro and Guest Introduction

But the main reason people take spirulina is for energy. This is why we call ours energy bits. And it gives you energy mentally, physically, and at the cellular level when it generates ATP.

Now, so you get energy immediately and also long-term. You get it immediately because it has the highest protein in the world, 18 of the 20 aminos, including the nine your body can't make, or the protein's already in amino form.

So there's nothing for your body to break down to get access to them. And then spirulina is also loaded with B vitamins, which convert the aminos into glucose so that you get some lift in your energy mentally and physically.

But it's not a stimulant. Stimulants are like caffeine, chemicals, or sugar, and you a rush and then a crash. With spirullina, the best way to describe how you feel is you just feel fresh.

That's it, nothing, no drama with spirallina. You just more alert and it doesn't take long Maybe about 20. Welcome to the TBD Fit podcast on Dr. Talks.

I'm your host, Daniel Keeley, and I will be guiding you through this wellness journey in terms of optimizing health and longevity, where we unpack the science, the dos, and everything in between.

Come join us. Look forward to seeing you inside. Welcome back to another episode of the TBD Fit Podcast, where we explore the science, the strategies and stories behind optimal health performance and longevity.

I'm your host, Daniel Keeley. And I am a functional medicine practitioner. Today's episode is one I've genuinely been looking forward too, because we're diving into a topic that sits at the intersection of cellular energy and metabolic health.

Joining us today is Katherine Arnsten who holds a PhD in natural medicine. She's the founder and CEO of Energy Bits which I've been using for a very long time actually.

Katherine's journey into the world of allergy began with a deeply personal mission after her sister was diagnosed with breast cancer. she started researching alkaline nutrient-dense foods that might support healing and In that search, she discovered algae and what she found changed the trajectory of her career and many people along the way.

So as she's dug into the research, And the science she learned, algae contains roughly 64% protein, over 40% of vitamins and minerals, and has the subject of tens and thousands of scientific studies, including being endorsed by the UN and NASA as one of the most nutrient-dense, sustainable food sources in the world.

The realization sparks a decade-long mission to bring algae into the mainstream and reposition into something that is a staple. So her company will be highlighting that.

offers a single ingredient, non-GMO, toxin-free, algae tablet designed to deliver steady, sustainable energy. And that is what we are going to showcase Today, I'm super excited to dive into the science.

Welcome to the show. Well, thank you, Dr. Chilly.

Algae Origins and Spirulina Energy Benefits

Glad to be here. Yes. And for everyone who's listening, my sister didn't recover completely. In fact, she was just, to I just finished a girl's weekend with her here and I live in Miami now.

We get together every year. I have two sisters. So, and we celebrate her success in life. I'm here to help shed some light on a food that was, in fact, the first life on Earth almost four billion years ago and is a staple food in Asia, heavily documented in science, over 100,000 studies documenting spirulina and chlorella, which we're going to talk about, but virtually unknown outside of Asia for all of its healing and medicinal properties, as I mentioned, are heavily-documented and endorsed by international agencies.

Man, here in America, do we need help? We need health with nutrition, we help with toxins, and that's what algae does. It's your SOS for whatever ails you.

And it does it naturally, it's a foundational whole food, not a supplement. So it is pretty cool. Pain certainly drives purpose and it sounds like your sister and her journey was the catalyst to what has become um, a staple in our nutritional program that we promote here.

And in terms of overcoming breast cancer, I mean, that's I'm glad to hear that the positive outcome. Yeah. I would imagine that, you know, algae wasn't the only thing that helped her.

So I was curious. Oh no, no. She did go through chemo, but her oncologist, this was in Canada, by the way, her oncologist was a female and women often are a little bit more open to nutritional interventions.

And she told her to change her diet to an alkaline diet, but didn't tell her what it was. So that's when my sister called me. I knew nothing about nutrition at the time, But I'm a good researcher, always have been, love learning.

So I just went online and found out it was mostly a plant-based diet because of the phytonutrients and the chlorophyll that had been proven to build your immune system.

And when you were going through chemo, you want a strong immune. But the other thing I discovered as I was researching foods for her was that it turns out there was a German scientist by the name of Otto Warburg, who back in the thirties won a Nobel prize for discovering that cancer cannot exist in cells that are slightly alkaline.

The scale of alkalinity and acidity goes from zero to 14. So you want your cells to be, you know, 7.1, seven point two. And when there is slightly alkyline, that means that indicates there's oxygen and water in the cells and they're communicating.

and so cancer can't grow there. I have to believe she wanted her to have an alkalined diet to encourage, to prevent cancer from going into new cells. So when I started reading about alkaline diets and this Otto Warburg and plant-based nutrition, and then this was, gosh, 17, 18 years ago and nobody was talking about plant based nutrition then, I dug deeper, learned more, thought it was pretty powerful, decided I would do something about it even though I had no training.

I got a health coaching certificate, put a curriculum together, tried to get people to eat more vegetables. And if there's any moms listening, they know how difficult it is to get kids to eat vegetables.

It's hard to adult see vegetables and right now, quite honestly, there are so soaked in glyphosate. I wonder whether it's even worth it. But nonetheless, when I couldn't get people to be vegetables in the curriculum I was teaching, I thought I got to find some way to the nutrition of vegetables into them without any of that downside.

People didn't like the taste. They didn' like how much work it was to bring them home from the grocery store or some people. It gave them gas, it gave him digestive distress, or they threw them out because nobody would eat them.

Anyways, I went back to all the things I found for my sister. And when I got to algae, that's when the miracles seemed to start stacking up. Because if you swallow them, they come in tiny little tablets.

They're about the size of baby aspirin. So they eat in China and Japan and Korea. Taiwan, which is where we make them. So if you swallow a tablet, there's no taste, number one.

Doesn't give you gas, Number two. Each tablet and we'll talk about them in a minute is so concentrated nutrition that you have the equivalent of an entire plate of vegetables in one tablet.

Now you need more than one table. 10 probably is a minimum per day. But just to give you a visual, if anyone's watching this on YouTube, one tablet is the same nutrition, it's almost a plate of vegetables.

So you add 10 tablets, you're getting all your chlorophyll, all of your phytonutrients, warty vitamins and minerals, highest protein in the world. It's very efficient nutrition.

No prep, they last three years. And no gas, good for babies, children, teenagers, pets. your grandparents. So when I saw how effortless it was to get this green nutrition into people, that it's backed by 100,000 scientific studies endorsed by nine nations as the answer to world hunger, because it has the highest protein in the world, three times more than steak, chicken, or fish.

That's when Since nobody here outside of Asia knows about this algae stuff and it comes in tiny little tablets, I decided I would devote the rest of my life trying to help people understand algae in general.

Did deep dives into the metabolic health issues so people could learn specifically. what it does for the mitochondria, for your brain, your heart. And that's been my mission, and it's still my vision.

But I also realized, if I recommend and educate people about the benefits of algae, I had to be sure that they had a healthy, clean source of it. Because all the algae that you can get from Trader Joe's or even Whole Foods, it has pretty much grown in China or India.

They're not as careful with their growing techniques, so they cut corners and you miss out some other nutrients because of their processes like using high heat, which we never do.

So that's what Energy Bits does. That's my company. We grow it very carefully in Taiwan. we don't use high-heat, so we preserve all the pigments and the enzymes and antioxidants so that you get the full benefit of the algae itself.

You could have frozen or fresh, but most people won't take that because most of them don' like the flavor and it expires quickly and all that sort of stuff.

So yes, I needed to educate people about what it does and why people, and I also like to help people understand why they're having health issues and then why algae has the nutrients that either correct or prevent those issues.

And then we make sure we've got a safe, clean source for them to have access to it. I've been doing this for 16 years. There's probably at least another 10, maybe another 16, You can definitely tell.

And how is your product different? Obviously, as you distinguish, there's a lot on the market. I believe your, is there some sort of cracked cell wall technology that enhances bioavailability or retains the, the enzymatic capacity and the nutrients or how does yours kind of differ versus what, what exists?

Yes. Well, and probably in a minute, I'll need to explain the difference between the different allergies because you mentioned the crack cell wall, which is only necessary for chlorella, not spirulina, because spirullina is actually a bacteria.

It doesn't even have a cellulose wall. But chlorella has the hardest cellulose wall in the plant kingdom, and it does need to be cracked or your body couldn't absorb the nutrients inside.

It's that solid. All algae, chleorellas, sold in America must be crack cell wall. Its regulated by the FDA and I suspect in Canada, Health Canada has that same regulation.

But what makes us different is really, is not so much that. The crack-cell-wall technique, it's the way we grow it and the we dry it. First of all, and we'll talk about this in a minute, algae is everywhere.

And the algae that we sell and probably this algae you get from Trader Joe's or Whole Foods is similarly grown. It's grown in fresh water. Yes, there is algae in the ocean, but the sterling and chlorella, which are the two microalgae, we will talk that in minute that are harvested for mass consumption, they're not in ocean.

They're grown fresh in water, Algae will absorb whatever is in the water. That's why you may go to your beach and maybe it's closed because there's an algae bloom and you get mad at the algae.

But don't get bad at algae because it only shows up as Mother Nature's clean-up crew. It shows out when there are bacteria and toxins in water, which you probably couldn't see.

The algae will observe whatever's in that water including the toxins and kill the bacteria. So we want to stay away from the algal bloom. By the way, it is not spirulina.

We'll talk about that in a minute. and does the same thing in your body. So if you don't have clean water when you're growing it, it will just absorb whatever's in the waters.

There's a company that grows spirulina in Klamath Lake, which I urge people not to use because I've got scientific papers that show there's microtoxins in that algae, because it's wild body of water.

You can't keep micropoxin out of the ocean or wild bodies of waters, impossible. We grow ours in triple filtered spring mountain water, very, So that's number one, it's safe and devoid of any kind of toxins.

The most important thing though that makes us unique is that we do not use high heat to dry our algae. Anything, any food heated over a hundred, I think it is 114 degrees, deactivates enzymes.

And so most of these other algae companies that sell less expensive products, the tablets or the powder, they have to cut corners because they need to get to market quickly to sell more.

So one of the corners they cut is they use high heat because they can get more to get to market. But when you do that, it's sort of like I tell people, like getting a great deal on a car, except you lift the hood and there's no engine.

When you deactivate these enzymes, and this is a very, very important one we're going to talk about, which you may have never heard of before. It's also an antioxidant, it's called superoxide dismutase, and it deactivates or neutralizes free radicals in the mitochondria.

But it is an enzyme also. So when you use high heat, doesn't do anything after that. Same with pigments. I've got science that shows that spirulina, which has two pigaments, a blue one, white is called a green algae, the green one which is chlorella, they're also deactivated, at least the blue is.

And I'm going to tell you some cool things about that blue pigment. It has proven to kill cancer cells. I can walk you through the pathway for that. So the fact that we do not use high heat keeps our algae raw.

Spirulina is actually live still because we don't do anything to it. We don' put any binders, we do not expose it to high heat. Chlorella is cracked, so it's not live, but it is still raw.

So you're getting a raw, unaltered, and unprocessed food. All we have to do is press them into tablets. And we call them bits because they're bits of food, nothing else, just 100% nutrition that gives you high protein concentrated all the electrolytes, all of the minerals that you need, the vitamins that your need.

The only ones missing really is vitamin C and all protein. So that's what really makes us different. And while it doesn't affect the quality of product, we are also the only company, and I'm the one person that I am aware of, not only in the United States but globally, educating people about algae.

helping people understand the nutrients that are found in there, helping you understand how your body works and why it needs particular nutrients, particularly as you get older.

why certain nutrients help athletes recover faster, prevent you from having colds, helps you with bowel movements, help you brain fog, brain development, heart, prevents heart disease.

It's all biology.

Chlorella Detox and Heavy Metal Removal

Its all cellular biology, metabolic by health biology and once you understand how your body and your cells work and you start to see that the nutrients that your cell's need are found in, uniquely found, in the algae you'll you start to understand why it works so well, at least why ours works well.

So it's pretty interesting, but there's a lot of science, and I try my best to make it easy for people to understanding. I've recorded 300 videos. They're all about a minute and a half, so we don't make anybody work hard to learn about this.

You can go on our website, energybits.com, we're going to send them out in emails, skin health, hair health gut health brain health heart health children's nutrition Doesn't matter what the topic is, I've got a video on it.

And we're also starting to work now with biological dentists and I realized we don't have any videos on dental health. So I'll start, be, help me doing a few of those soon.

Well, it's interesting you mentioned dental. Um, obviously there's a lot to unpack what you just suggested, but working backwards in terms of dental because if correct me if I'm wrong, It's suggested to swallow these bits rather than.

I chew mine. It's better if you can chew them. Most people don't like the flavor of spirulina and I'll maybe circle back to the difference between the two of them and the reason they don t like it is because it has the highest protein in the world, 64% protein.

Chlorella has a little less and also spirulin is loaded with essential fatty acids. So they're really chewy and they re really green and with the chlora it tastes more like a sunflower seed or a soy nut.

So it doesn't stick to your teeth. The reason why it's better to chew them if you can is because they get absorbed faster because you they're getting absorbed sublingually in your mouth.

And as I mentioned, the chlorophyll kills bacteria. So, it is killing the bacteria in the mouth and the reason we're very excited about the biological dentist community, we already work with a number of them, but we are starting to go to the conferences, is that a lot of the are taking out what's called amygrams.

These are your fillings, those silver fillers in your teeth. What's in those are mercury. They're very careful about the way they extract them, but there's still fumes, mercury fume, that can get into the air and also you might swallow a little bit.

So taking chlorella, as we'll talk about, maybe I'll segue next into difference between the two algae. Chlorylla pulls out all heavy metals. mercury, radiation, aluminum, pesticides, toxins, anything that shouldn't be in your body, chlorella will attach and chelate out.

Spirulina is not a chela, but chloella is. Pretty much all biological dentists know this, that they don't know that we exist and that were a very clean source of chloella.

So no heavy metals. Anyways, we're excited about getting into the dental community in a bigger way. But maybe, Tilly, if it's okay, maybe I could rewind a little bit and help people understand what algae is and the different types and what they do differently, because they they work quite differently in your body.

So as I mentioned, algae was the first life on Earth, and it was a cyanobacteria like spirulina. Not just the plant, as i

mentioned. First life. Before the cyanabacterias started growing, there was an anaerobic cell, which means it grows without oxygen.

There was no oxygen on Earth, just gas and water. That's it. And then this one cyanobacteria, and spirulina is a cyanabactera, after a billion years, there was a lot of oxygen Earth.

So now aerobic cells, which were larger, they could start growing. So they did. But meanwhile the little anaerobic cell was struggling because there was so much oxygen on Earth and it does better without oxygen.

And so basically the large cell, the aerobic cells, absorbed the smaller cell because they probably said to the guy, hey, I see you're struggling over there with all this oxygen, what were you thinking?

You're doing something that's not good for you. So the big cell absorbed a little cell and we're going to talk about this in a minute. That original cell guess what?

became your mitochondria. It's all proven in science, it's called endosymbiotic theory, which is why the mitochondrion have two membranes. All of your cells in your body have a single lipid membrane, Which means fat.

And the Mitochondria have that too. But it also has this air membrane and no drugs can get in there, virtually no antioxidants. We'll talk about a few of them, including this one called duproxy-dismutase.

The important thing is when you get into cell biology, you start to understand your mitochondria are the most important thing in your cell because they generate all of your cellular energy for you.

And we're going to talk about that in a minute. But how cool is it that they evolved from… It's a circuitous route, and it's not a direct line. But nonetheless, this is one of the reasons why I say algae is like your godsend, is your SOS, because virtually everything that's in it can get into the mitochondria.

And there's so many things that can't get in there. So I said, hey, they get there because they're family. It was like, bro, get it in here. Where have you been?

Bring me some of those antioxidants. Give me chlorophyll. I need some help here! But anyway, so back to the story of the algae. So that's where it evolved from.

And then life started getting bigger and more complicated. We've only been on Earth, by the way, for 200 million years. Algae predates us by three billion and eight hundred million year.

It's been here a very long time. algae is its own food category. it's not technically a plant, it is not an animal. And within that category, there are two subcategories, macroalgae and microalgy.

Macroalge is that stringy stuff you see washing up on shore, also known as seaweed, dulce or kelp. Now it's still good for you because it has lots of fiber and it is from the ocean.

It's only in the oceans that's why they call it seaweed. So it also has iodine, which can be good or bad for depending on where you sit with your thyroid.

But it only has a few strains, but virtually zero nutrition. High fiber, zero nutrition. Microalgae is completely opposite. It's called microalgy because it's microscopic in size.

I read recently that you could get like a million liters of algae on the head of a pin. That's how tiny it is. And it''s everywhere, not just in the ocean.

growing probably in your swimming pool, your aquarium, and grown as a food crop in Asia. 99% of the spirulina chlorella that you see on the market is from Asia, that's why you don't know about it.

So it's grown in fresh water, dried into a powder, then pressed into these little tablets. Now, microalgae is completely opposite to macroalgy. Microalgea has either zero fiber, like spirulina, which is a bacteria, or it has just a little bit of fiber which has chlorella.

But it the highest nutrition in the world. We have a quote from NASA that says, one gram of algae has the same nutrition as a thousand grams of fruits or vegetables.

One to a 1,000. So we sell our tablets, and the best value is these large bags. There's a 1000 tablets in a bag. Now, I used that calculation and determined that one bag of these thousand tablets has the equivalent nutrition as 551 pounds of vegetables.

give you another visual that's 30 grocery carts of vegetables in this one bag. Nutritionally, not the fiber, but nutritionally. This is why I call algae efficient nutrition.

By the way, they last for three years and what vegetable will last three and you can swallow it, you don't have to prep for it. It's for mothers, athletes, traveling people.

People don't like vegetables. people get gas from vegetables, it's a godsend. So you have microalgae, and within micro-alga, you thousands of strains, but there's the two that are best known.

There's blue-green and a green. Now the one blue-green algae that most people know is spirulina, and some people, if you know a little bit about algae, the green algae they know, is chlorella.

Now I stress this because when you read online that there's a blue green, algae closing your favorite beach, we're not talking about spirullina. Spirulena is the form of blue, green that's harvested in fresh water.

Let's say you had a second cousin that was a bank robber. And when people say, well, you know, what's wrong with your family? Well, it's like, that's them.

That's not me. So when you got a blue-green algae closing your favorite beach, It's just another type of blue green algae. Spirulina is the one that is harvested in fresh water.

and it's not found in the ocean. So within spirulina, or blue-green algae, the spirullina is the one people know because it started growing. Chlorella and spirula started to grow shortly after World War II in Japan.

It took them 10 years to figure out how to grow it for mass consumption, and then they started growing spirulina. Although I will tell you, spirullina was used hundreds of years ago in Mexico.

This is what the Aztecs used. It's still grown in Africa. it was a main source of food for, it still is in, Africa and for the aztec until the Spanish conquered them and thought they were swamps.

drain them and the poor Aztecs lost their main source of protein in food. So spirulina and chlorella are the two main types of microalgae that are harvested as food crops.

Now they're quite different. Blue green spirulina is called a blue green algae because it has two pigments in it. I designed all packaging, so that's why I did it in blue.

The main one you want to know about is phycocyanin. You've probably never heard of it and spelled with a P-H-Y, but that blue phicocynin has healing properties as an antioxidant.

As I mentioned earlier, it's proven to kill cancer cells, and I can walk you through the pathway for that. It also has what's called anti-angiogenesis properties, which prevents blood vessels from growing into cells.

But the main reason people take spirulina is for energy. This is why we called ours energy bits. And it gives you energy mentally, physically, and at the cellular level when it generates ATP.

So you get energy immediately and also long-term. You get it immediately because it has the highest protein in the world, 18 of the 20 aminos, including the nine your body can't make.

And the aminos are already in, or the protein's already an amino form. So there's nothing for your to break down to get access to them. Then spirulina is also loaded with B vitamins, which convert the amino into glucose so that you get some lift in your energy mentally and physically.

But it's not a stimulant. Stimulants are like caffeine, chemicals or sugar, and you got a rush and then a crash. with spirulina, the best way to describe how you feel is you just feel fresh.

That's it. Nothing, no drama with spiralina. You just. Feel more alert. And it doesn't take long, maybe about 20 minutes. Um, if you, uh, 20, you know, twenty minutes to be swollen, but you do need at least 10, 15 or 20 or even 30 is better.

NGL players take 75 spirullina before a game and, ah, they take same amount after a gain to pull at lactic acid. So spirulin is known for being energy.

mentally and physically. It has nutrients in it that really help the mitochondria perform better, your electron transport chain, and we'll go into that in greater detail.

And that blue pigment also speeds up this one particular molecule in the electron transfer chain. The other thing that's really cool about spirulina is it satisfies your hunger.

We do also sell them in little pouches of 30. You can have this for lunch. There's 30 tablets, one calorie per tablet, so 30 calories. And you'll get nourished with protein, 40 vitamins and minerals, and you won't be hungry or tired for two or three hours.

If anyone's on a GLP-1, please, take this because you want to preserve your muscles and you wanna make sure you're getting enough protein. And if you not eating, you are not getting nourished.

So this will be your answer. Or whether you on a weight loss program or just wanna be, just traveling or you in between meals, your busy all day. I eat them all the day, I intermittent fast.

All morning with the spirulina and chlorella, i put sea salt on mine. By two or three o'clock I start adding pistachio nuts and then I have a meal at like five or six o clock.

But very, very nourishing, satisfies your hunger. It gives you energy mentally, physically, wakes your brain up, and there's no stimulants in there. So very, very nourishing, energizing.

I say spirulina puts nutrition in, which is quite different from chlorella. It does have nutrition, of course. There's 40 vitamins and minerals, but its main claim to fame is that it pulls toxins out.

So spirulina is nutrition in and chlorella is toxins out. Now, how does it do that? Well, it does that through a number of ways. First of all, and we talked about it briefly, It has a very hard cellulose wall.

And that hard cells wall attaches to heavy metals, all pesticides, glyphosate, mold spores, and chelates them out. Now you do need the 20 or 30, 10 will get you the chlorophyll and other nutritional benefits, but for detox you need 20 to 30. So first of all, it detoxes you because of the hard cell wall.

Chlorella also kills bacteria because it has the highest chlorophil in the world. Spirulina has highest protein in world, Chlorella is called Chlorella because of the chlorophyll, which is a green pigment.

Spirulina also has the green pavement in it, but not as much as chlarella. The green pigments, chlorophil, kills bacteria and it builds your blood. I'm showing you a picture.

This is the chemical composition of your hemoglobin. They're virtually identical, except your blood has an iron atom in the middle, which carries oxygen, and chlorophyll has a magnesium atom.

But otherwise, chlorphyll builds your body. And when you have a healthy blood, you're going to have healthier body, healthier brain. The trouble is our plants are so monocrop now and there's no minerals left in the soil, so they're not pulling up anything for minerals or chlorophyll.

My arugula goes yellow after two or three days because it didn't start with much chlorophyll, and some people take chlorofil water, which is good, but this chlorella has 25 times more chlorophil than liquid chlorophyll plus you get protein, 40 vitamins and minerals and a lot of other really juicy stuff.

Product Sourcing, Processing, and Quality Differences

So just to retrace, it pulls out toxins because of the hard cell wall, the chlorophyll kills bacteria through your entire body, your mouth, you're colon, all the way out because only about 10% gets absorbed.

The rest of it comes out through you colon and your bowel movements. Chlorella also has a very high concentration of glutathione, which is also an antioxidant that's very important for detoxing your liver, and it has fiber, which feeds your gut biome.

These are the healthy bacteria in your guts. They need fiber. So chlorella has that because it has the fibers, spirulina does not. Now, the other cool thing about chlidella is that your body gets rid of toxins four ways, breath, sweat, urine, and bowel movements.

And there aren't many people talking about bowel movement, but I do. because they're a very important pathway for maintaining your health. Because you can't just put nutrition in, you gotta get rid of this, what I call the junk in your trunk, stuff that your body didn't want.

And that's through a bowel movement. But if you're not having a bow movement every day, and if your eating dairy or you are stressed, your traveling, or your not drinking enough water, not have enough fiber, taking any kind of prescriptive drugs, You're probably constipated.

It's a big deal, just going to any drug store, You'll see aisles and aisle of all this constipation stuff. Chlorella is your godsend because what it does is it stimulates what's called peristalsis, which is the bowel movement.

It does it very naturally with all the chlorophyll and the tryptophan. That's the highest trypophane in the world, is a precursor to melatonin, so it helps you sleep.

which is important for your repair and your detox. So chlorella not only pulls out toxins, but it stimulates your body's natural removal of the ones that it doesn't want.

And that's the other reason why we call this a gut health allergy. I mentioned earlier, we refer to spirulina as a brain health algae. Because I'll get to the mitochondria health in a minute.

Your brain has the most mitochondria, so because spirulina has nutrients in it that are unique and help the mitochondrion, and your brain is the mostly mitochondrial, I call this brain food.

We know that fatty fish are brain foods, a lot of people know because it has high omega-3. I remind people, well, where do you think the fish got the omega 3 from?

Yes, they got it from microalgae. And a lot of fish oil goes rancid by the time you get it. So skip the fish, oil, don't worry about anything getting rants.

Spirulina will get your brain functioning because it's helping your mitochondria get back in track. so spirulia brain food, energy nourishment. Chlorella is a detoxing gut health issue helps with elimination of toxins and elimination in

your bowel.

And also we recommend this one. You can have it during the day. but we generally suggest for sure before bed because that's when your body goes through a detox repair cycle.

And so that high tryptophan will help you get into that deeper sleep. Tryptophane is also a precursor to serotonin, which is your happy mood transmitter.

Some people have heard of seratonin but maybe you don't know but 80% of your serotonin is made and used in your gut. It affects your brain but it's made in use in you gut, so starting to see this is a This is a gut health algae, spirulina is brain health, algae brain and mitochondria.

So they work really well together. They compliment one another, but they do completely different things in the body. And they're your, your super couple.

Yeah, certainly they, they go, you've got Bonnie and Clyde over here. Yes. Right. The dynamic duo. so if someone is. Let's say metal toxic, mold toxic.

Now we're not suggesting this is medical advice, but in general, how should they think about consumption in terms of taking both these products in quantity and duration?

Yeah. Well, ultimately, everybody should be taking a spirulina and chlorella every single day for the rest of your life. And by the way, when you do, you can eliminate a lot of the multivitamins.

For spirullina, You can't eliminate multavitamin, a fish oil, CoQ10, biotin, collagen powder. I don't think you really need peptides, although there are some special occasions for peptide being helpful.

but this will eliminate five or six of your supplements, and it's coming from food, so that's pretty sweet. With chlorella, this can eliminate your need for vegetables.

Honestly, what do vegetables do? They give you phytonutrients, they give chlorophyll, fiber for helping with elimination. What does chlorella do, it gives you chlorophylls, for elimination!

So they're really great. But if you wanted to understand when and how to take them, 10 tablets of spirulina in the morning or afternoon or another 10 in afternoon, if a lot of people get fatigued, sort of they have a dip in energy around two or three o'clock, it's really actually a cortisol.

You can have as much as you want, because it is food, but 10 is your sort-of starter point. Kids, give them half, or half of their age, so if they are five, Give them two to five tablets a day.

If they're 10, give them five to 10 until they are like 12 and then you can give it an adult portion. But 10 is your entry level. 30 a days is what is really a therapeutic amount.

So if you had cancer or are trying to, you know, prevent cancer, if are wanting to replace a meal or you're trying lose weight or if want to improve your skin or your brain or anything, 30 is a better number.

I've been taking, between the two of them, I have been taken both of these for 17 years, probably at least 100, 120. I'm not suggesting you take that many, but I was just telling you what I take.

You don't have to buy them. So there's no upper limits. And by the way, turned 70 this year in a few months, seven zero. and I got my PhD last year and run a big company and they travel nonstop and writing a book.

This stuff works and i don' take any other supplements. Nothing. And I don't take any other medications, any medications. Nothing, and I have no chronic diseases.

In my age category, over 65, I think it's 80 or 90% of people my, age have at least one chronic disease and are on like three medications I take nothing.

So I only have millennials working for me. I tell you all this not to boast, but to help people understand that If you understand what your body needs, and then you are, for me, I just had my sisters visiting, they're great cooks and they have families and stuff, but I don't have a family.

So I've never really learned how to cook. But if I get a recipe and I got all the ingredients I need in the recipe, then I follow the recipes, so I can do pretty well in my kitchen.

Your health is the same way. If someone helps you, Dr. Chile is I'm sure helping you. They can give you a recipes for health, for your recipe, in most cases, you should be okay.

Aging is natural. Declining is not. And somewhere we have normalized, well, I know why we've normalized it, because that's what we see. We see people that are declining and we assume that that what's gonna happen to us.

Then we get all excited when we hear about the Blue Zones. What are they doing? The few people around the world, how do they do it? Well, guess what? They're doing all the things that I do.

they do things naturally. So I prioritize sleep, I make sure I get movement. I'm outside in the sun, i'm drinking fresh water, i'm making sure i eat whole foods, I don't eat any artificial things.

Then there's other things like your family and purpose. I have obviously a big purpose if you I put algae right in there with sleep, movement, sun, because it's foundational.

If you start following things that are foundational, gifts to us from God or the universe, whatever you want, we're in a pickle right now. Our food is so damaged, our food supply is damaged.

Your body operates like anything. Your phone won't work if you don't recharge it, your car won' work, if don' put gas in it. And somehow we think our bodies are going to work optimally, even though we don''t give it what it needs.

So the reason I do podcasts and I'm writing a book is to help people understand what their body needs because it's like the recipe. If you understand, what is needs and then you can go out and get what needs, and you remove what doesn't need.

There's a pretty good chance things will, because it's not that the algae is healing you, it is giving your body what it needs to heal itself. It needs the certain nutrients to perform certain functions.

And it doesn't want things like toxins that are sitting in your cell receptors. The way I describe that is where I used to live in Boston for 35 years.

They just got a big dump of snow. And so people are very protective about their parking spaces. But if someone's taking your parking spot, you know, and you very well can't get in there.

Same with your, if you've got great nutrition coming in, but you got toxins sitting on your cells receptors, they can get it in. So think of chlorella as like the tow truck or the police force that's pulling all the toxins out.

So now the good nutrition could get in and do all of the great stuff. And so, as I mentioned, spirulina, you want 10 as a starter amount. More is better.

Chlora is the same thing. 10 will give you the nutrition and the chlorophyll in all 45 minutes. But for detox, closer to 20 to 30 per serving. And the good news is it tastes pretty good.

I put it with sea salt or pistachio nuts. There's a doctor by the name of Dr. Klinghardt, he's the German physician and naturopath, and he has been running a clinic in Seattle for, gosh, 30, 40 years.

He says the same thing about chlorella. You need enough of it in order to have it attached to the toxins Whether it's mold spores. I had, I moved into a brand new condo here in Florida and guess what?

They found, and I was feeling, starting to feel sick and brain fog and couldn't sleep and fatigued. They, found I, was doing renovations, they found mold, like black mold.

But fortunately I knew that Chlorella was going to do the trick. So I just doubled, tripled up on my Chleorellas. And within a week it was all the fatigue and the brainfog gone.

So even from a personal experience, I know it works and it's food. And so there's no. toxicity. I'm not a big fan of activated charcoal that people use often for detox, but it will pull out all minerals.

Chlorella only pulls out the bad stuff and actually introduces all the electrolytes back into your body. So it doesn't take anything out that shouldn't be there.

And you can give it to any age pets, no drug interactions, especially with spirulina. It doesn' matter what age, newborns, pregnant moms. Honestly, it's for newborn because there's no fiber.

Put it in their baby's water bottle. Then in fact, in Japan, when babies They're preemies and they can't digest mother's breast milk. They found that spirulina in the water is the only thing that will keep them alive.

I was curious about that and I found a chart that showed the amino acid profile of mother breastmilk. And I thought, gosh, that looks awfully familiar.

Sure enough, it was virtually all the same aminos in same proportions in spirulinas. So I now call spirullina Mother Nature's Breast Milk for us because it does the does, honestly.

It's pretty crazy. If someone is taking a therapeutic dose and they have some adverse reaction, how do you mitigate against that? Well, in hundreds of years of spirulina, I've never once seen any report had anyone ever tell us it is the safest concentrated food in the world.

With chlorella, there are a few people that don't tolerate chlorella. And the few times we've talked to people about this and we followed up with them, in 100% of those cases, there was some kind of issue in their lower intestinal tract.

Sometimes they were aware of it, sometimes they weren't. So it's sort of like the canary in the coal mine. And you'll know pretty instantly if you're one of those people, because you will vomit and you have massive diarrhea.

It's like one in 10 million. So, it doesn't happen very often, but it does happen. Obviously, my suggestion would be, since we've had this follow-up with these people go get your lower intestine checked out.

Some people it turned out they had an operation and they were missing part of their stomach, or some people had a a colon cancer they weren't aware of.

So if that does happen, that's certainly something I would be recommending people to obviously stop taking it until you get figured something out. But the spirulina, and that is why if you were ever doubting anything, I always start with spirullina.

And if had any doubt about chlorella, we sell them in single pouches on Amazon for $6. This is spirula, but the chloella is finished size. smaller one.

Just buy one pouch and see if you're fine. And if are, you are good to go. Because the two of them are amazing. I always start people with spirulina because there is not a single known or either documented negative effect from spirullina.

And the great thing is you'll be able to feel something in about 20 minutes. Chlorella, because it's a wellness allergy, so it is preventative. You won't get colds and your kids won' get the cold.

The only time you really notice it initially is one of the toxins it pulls out is alcohol. If you had 30 tablets after you've had some cocktails, you'll be stone sober in an hour and a half because it takes longer to get fully absorbed and you will never have a hangover.

Or if you're an athlete, you take it after your workout, it will pull out lactic acid and your muscles won't be as sore. And you'll, and actually we just got, or I got aura rings for all my team and we're going to be doing a little test to see if, cause we've had people tell us that after taking chlorella, their sleep scores with their aura ring went up.

So, uh, because of the tryptophan that's five times the amount of trypophane is, is you find in Turkey. So you'll notice that, but it's very much a cleaning.

It's not like, I say it like giving your body a shower from the inside. That's what Fiorella does. Because we're exposed to toxins every single day. And I read that the average adult in America has 700 toxins in them now.

They're finding when they look at babies on Biblical cords, they have like the PFAs, like 200, over 200.

Mitochondria, ATP, and Oxidative Stress

Before the first day of birth, That doesn't bode well for their health. It doesn´t bodes well with us either, because think of how many layers of toxins you're exposed to from the air, from your food, your clothing, and your cosmetics.

One little small amount isn't life-threatening, but when you layer it on every single day from multiple sources, then it's the straw that breaks the camel's back.

The bridge that finally collapsed because it just can't tolerate Your body just wasn't built to sustain that kind of toxic load. So we want to get rid of it as effortlessly as we can without causing a lot of difficulty.

And I tell you, I love chlorella. I eat it every day, same as spirulina. For the enhanced tryptophan, are you suggesting dosing closer to evening or before bed?

Well, you could take either of them any time of day, but generally you're tired and hungry and want energy in the morning and the afternoon. So generally we suggest spirulina when you get up.

put a handful in your mouth, you don't like the flavor, just swallow a handful, and out the door in seconds. And at lunchtime, because if you're not eating in a quiet, nourished location, then you can get digestion, indigestion.

So it's a great snack to have at a lunch time, or again, at two o'clock or three o'tclock. But, same with chlorella. Chlorylla will not give you energy, will satisfy your hunger, but you could still have it during the day, it helps with digestion.

But we do recommend closer to bedtime, as you said, Dr. Chilly, because of the benefit it will give you and your body. You may not know this, but when you are in deep sleep, your brain actually shrinks in size.

It has its own lymphatic system. And it's called the glymphatic. So it was sort of like a street cleaners that are there. If you have chlorella in your bloodstream and it is circulating throughout, it'll be able to pull out more toxins that're in the brain, which is important for preventing Alzheimer's and other mental issues and also repair because there's 2 million mitochondria per neurotransmitter.

So we want those babies to work. Um, so all that helps what is done while you're sleeping in the deep sleep state. so it's definitely beneficial. And then you'll, it'll help with that bowel movements to get the peristalsis.

By the way, if anyone does have any constipation, I have another little tip has nothing to do with algae. Fresh pineapple. Yes. Fresh pineapple, it's the bromelain in fresh pineapple.

It helps with digestion and elimination. Every time I've mentioned it to somebody, they've told me afterwards, It's unbelievable. So, you know, just get the whole foods or get a pineapple yourself.

You can buy it pre-cut up, not canned, of course, Just fresh because your enzymes will be dead if they're canned. But so that's my other little tip. Totally not related to.

Bell movements are big for me. Everything that you've been discussing is part of my foundation five. You got to eat right, sleep right. Move right talk right poop right and you're gonna feel right, ultimately.

In terms of the product, is it okay if you crush it up or if it goes into a smoothie? Sure, crush up, yeah. Put it in a smoothy, put it into trail mix, take it by itself.

Just get it it you, because I actually designed the packaging to be very attractive, cause I can't help anybody if I cant get into their mouth. And there's no shame in swallowing it.

So if don't like the flavor, It was so tiny, about the size of a baby aspirin. Will it stain the teeth? Any issue with teeth stain? Well, it would stain your teeth, but the spirulina will stick a little bit to the back teeth just for a while.

You get used to it, your tongue will pick it out in a minute or two. Chlorella does not stick to your team because it just doesn't have as much protein or it doesn' have such fatty acids like the spiralina does.

Why no algae oil? Once upon a time, This was way back. We were, for our vegetarians, vegans, we were substituting fish oil with algae oil. Nice. So I know that you carry both these.

I'm just interested, are you suggestive that this is sufficient because you're deriving algae from this versus taking algae? Well, We don't sell algae, oil, but I am sure it is available.

And you know, I will never beat up on omega-3 because it's so important for our health and for brains. So, but I'm not a big fan of fish oil. It's fish, oil, cause it goes rancid, there's primrose oil there is algae oil There are other plant-based omegas that you can get.

I am not saying for sure, eliminate all your omigas, But I would suggest maybe rethinking fish-oil. killing the oceans. If anyone saw a movie called Suspiracy, commercial fishing is overfishing.

Twice in the movie, they said, take algae instead because it's a replacement for A, the fish oil, and B, I'm not saying that you would live just on spirulina or chlorella, although you could, because it's such a complete food, but it complements your lifestyle.

Because if you don't have time to prepare a healthy meal, which you want to be nourished, I am not a big fan of supplements. There's exceptions, they're usually made with artificial ingredients and high heat, and they are known to acidic, we want keep that alkalinity issue.

So supplements are what people are taking because they aren't getting nourished from their food. Unless you have your own garden, which is difficult, it is hard to be nourished, even if you're eating organic food, produce.

It just is. And even, if I'm not a vegan, I love eggs and I do eat seafood and grass-fed beef. But the reality is 90% of our farming, soy, corn, wheat, is farmed as animal feed.

When you eat normal, conventional animal chicken or beef, you're eating glyphosate-treated corn and soy. So it's just hard to stay healthy with that damaged food supply.

You either need to supplement it with algae because it will give you the nourishment you need and pull out the

toxins you don't, or try to join a CSA or something and get your animal produce from a place that's preparing or helping the livestock grow correctly.

By the way, this is a little off topic, but one of the nutrients that people are missing in their diet very regularly is something called K2. K1 is in any vegetables that are green.

Now, animals, particularly cows, have an ability to convert K1, which is in grass or kale or anything green, into K2. And so up until about the 70s, humans, we were getting K-2 because the grass were on meadows and eating grass and converting it as K 2 for us.

Then the farmers realized that they fed the cattle corn. or soy and put them in an enclosure, they would get fat a lot faster and the farmer would make a whole lot more money.

So that's what they did in the 70s. Instantly, the cows were taken off the meadows, instantly this natural supply of K2 in our diet disappeared. What does K-2 do?

It moves excess calcium out of soft tissue and into your bones. And what is that soft issue? Well, it's your skin, but more importantly, your blood vessels and your heart.

When you have arterial sclerosis, which is hardening of the arteries, one of things that's harding is the calcium. So there's the daily requirement of K2.

It's one of the many goodies in algae. So it will move this excess calcium out of your, this is one the reasons why when you take spirulina in particular, your blood pressure will drop, you're cholesterol will draw, and it does it naturally by a lot of different pathways.

But one them is it now introduces K-2 back into your body so that that excess Calcium can be sliced off, subtly removed. and moved into your bones and your teeth, which is where calcium is predominantly stored in your body.

But it also does it because it's alkaline. It's the most alkalined food in the world. Your blood, you probably don't know this, but your hemoglobin, the little circles, red blood cells, they have a negative charge around them.

And if you've ever held magnets up, how they repel one another, well, that the hemaglobin has a positive charge so that it will repel one another, so they can stay round and hold the iron atom inside, which is what carries oxygen.

But when you eat too much acidic food, like dairy and animal protein, and you're stressed, you become, or work out too, much your blood becomes acidic, Which strips off the negative charge around the hemoglobin.

So now they clump. Then they, can't hold, the oxygen very well. They can get into the tiny capillaries. This is one of the reasons why you fatigue. COVID, by the way, did the same thing.

It stripped off, which caused the blood to clump, which cause people to have heart attacks because they couldn't get oxygen into them. So algae is the most alkaline food in the world which will help prevent that.

Again, one of the things that it does to prevent blood clots and allows your blood flow clearly. By the way, your body knows that can't be that acidic, so what it is if you are too acidic from eating all these you know, processed foods or dairy or whatever, it will immediately pull minerals out of your bones and your organs and yourselves to dilute the blood and bring it back.

Cause your blood needs to be 7.34. It's slightly alkaline. Your cells can be in your body, could be a little less alkalined, more like 7 point one, 7 by two, but your bloody needs be seven point three, four at all times.

So your body is very intelligent. But that's why, again, I think my sister's oncologist wanted her to have an alveoline diet because if you're constantly pulling the minerals out of your bones and your organs and cells, it depresses your immune system.

And it contributes to osteoporosis, which is a big problem for women, particularly after the age of 16. Which is me. I don't have it. So, sorry, I went all over the map on a lot of things, but it's, it, algae is sort of like a little mini Einstein.

It's like, gosh, you do that too? Oh, wow. Are you kidding me? And we didn't even get to mitochondria health. No, this has been a mini masterclass in all things algae and spirulina.

And I know you mentioned vitamin K2 and going back to your Asian counterparts, which is where you source it and NATO being one of the highest. foods that are fermented rich in K2, which is really fermented by our bacteria.

So you need specific bacteria to ferment and synthesize B vitamins, vitamin K. And ultimately, we use natal kinase for our most cardiovascular compromised patients, derived from that.

Obviously, a strong consideration now with the addition of spirulina and its impact And obviously heart health and mitochondrial health in general, we do a lot of sports performance too.

So enhancing oxygen utilization and feeding into the electron transport chain is, as you mentioned, the body is once that negatively, that negative charge is that's why grounding is so imperative.

We're a battery of a walking battery. Absolutely. And so the buildup of these protons or hydrogen ions is when inflammation is it begins to rise. Consuming more of these alkaline-based foods, I think, is essential.

And when you mentioned cancer going full circle now, for me, there are five hallmark signs of cancer. The first being the body being acidic. That's when pathogens can proliferate in an acidic state.

Ultimately, the goal is you elegantly tie those loops is, is to, to shift that balance and to maintain homeostasis, maintain healthy mineral balance to make sure that stays in bone, support the immune system and ultimately mitigate the, the role of inflammation, especially from our outside world that is ever increasingly more toxic.

You mentioned, you know, PFAs and. in moms burning placentas, estimated 290 chemicals. It's estimated 200 million pounds of chemicals in circulation in the US alone.

it's a startling statistic, but ultimately we are resilient. We can heal. Um, it definitely calls to live with a specific intention and your products, It sounds like need to be foundational.

And, uh, I'm a huge proponent of what you've been able to put together. Definitely, I think this is in conjunction with my foundation five, you got to eat right.

This is not necessarily replacing everything, but in conjuction with eating a healthy, nutritious, balanced. I don't like the word diet, But for me, kind of paleolithic.

Often enough, eating what your ancestors ate, local, fresh, in the seasons, definitely incorporating, I think, this concept of algae, both chlorella and spirulina.

I'm a huge proponent and I will say guilty, things add up and sometimes I forget to do it, but I genuinely feel better when I take it. No, no nonsense.

There are certain products that I generally feel more energized. And genuinely, feel like I am doing my body good. So this is definitely Reign Supreme.

I know we're approaching time here. Any other thoughts, comments to kind of take everything full circle? Well, a couple of things. Algae isn't new. It's just new to you.

And so that's what I'm trying to do is help people understand what it is and why it works so well. I didn't get into the mitochondria as much as I would have liked, but think of your mitochondrion as you would lights in a building.

You can't do any work in your building if you have a power out engine. I think they did a lot of that this last weekend with the big snow bomb in New York and Boston.

Or when your lights go out. Think of your mitochondria, they're not just your lights. They are your power source. And so when we talk about cellular energy, we're talking about just energy to go for a great run or go to the grocery store.

This is cellular you need to live.

Dosing, Fasting, and Practical Use Cases

Cellular energy is what keeps your light, your, lights on your eyes from seeing your brain, you know, transmitters to work your lymphatic system to, work for your heart to beat, for lungs to take in oxygen.

All of that requires cellular energy and your body can't store it, what it's called as ATP. So you need efficient mitochondria. But the problem is as we get older, they get damaged and die.

And so literally the lights in your building go out. And when you have less energy and less ATP, nothing works very well because there's just not enough to go around.

It's like having a large family and you only have one piece of meat or something and just sort of feed it out. So nothing work well, you can't rebound well from sports, or quickly from any kind of illness.

And so as you get older, this frailty situation happens. One of the reasons why it's happening is because you're A byproduct of this ATP that we all need, which is cellular energy, a by-product are these things called free radicals.

You may be familiar with free-radicals, they're an atom with an unpaired electron, mother nature doesn't like imbalance, so it will steal an electron from a neighboring molecule which then causes damage and then it's unbalanced, it'll steal.

So the good news is there's these thing called antioxidants that are like the kid that came to school with extra lunches. And it neutralizes the free radicles.

The problem is, remember the very beginning I talked about the mitochondria having a second inner membrane. And so that second in their membrane prevents a lot of the antioxidants that we normally think of like vitamin C and vitamin E, they cannot get into that inner memory.

But there are a few like chlorophyll. and glutathione, melatonin, and a main one is called superoxide dismutase, which is not only an antioxidant, but also an enzyme.

And it's called Superoxide Dismutased because the type of free radical that's made in the mitochondria is very damaging. It's call super oxide. And the thing that neutralizes it is superoxide dismutase, which means demutes it, it decreases it.

And what it does is it turns it into harmless water and oxygen. It's also called SOD to be short, easier to remember. Your body makes it for you from the moment you're born, just like it makes melatonin and makes hormones and estrogen and all that.

But after the age of 40, it starts slowing down the production of this SOd. And then 50, you have even less of it. All at the same time that by now you've accumulated toxins and you mitochondria are dying.

So it's a perfect storm. Also, women, we hit menopause, estrogen behaves like an antioxidant. And so once we get menoppause we don't have that to protect us and we lost our superoxide dismutase, which I say acts like a big golf umbrella.

You know, when you get stuck in a rainstorm, you have one of those big gulf umbrellas, it doesn't stop the rain, but you stop getting wet. Superoxide dismutase does not stop the free radicals.

They're a natural byproduct, but it prevents the mitochondria from getting damaged because when they get damaged, the way it produces all that energy for you through something called the electron transport chain gets damaged.

Maybe you'd like to drive to New York from Chicago on the main highway, and there's a storm, then the highway gets knocked over, or there may be holes and trees, there are car crashes.

You can't go on a highway. So you think, well, I've got to get there. And so you take the back roads, which are lumpy and dangerous, they take twice as long.

When your electron transport chain isn't working because of all these free radical damage, guess what? Your body says, Well, i've gotta do something. I gotta get to New york.

It switches over to something called glycolysis. which is a much less effective way of generating energy. You only get two ATP instead of, I think, 34 from your regular electron transfer chain.

And guess what? Cancer loves glycolysis. It's the main way it generates energy. So when you are suffering and you have too many free radicals because you've got fewer mitochondria that are functioning properly and your too stressed and eating all this bad food that releases free-radicals, your body automatically switches over to a less efficient way of generating energy, which makes you more tired because, you don't have the energy and so now it's a downward spiral, but the spirulina has the highest concentration of this antioxidant your body is slowly not making for you after the age of 40, it's called superoxytismutase, but it is an enzyme.

And so this is why ours works so well because an enzymes is deactivated with high heat. So the cheaper algae that you're buying that came from China or India that use high-heat to dry it, they deactivate that enzyme, that super-oxy-dismu-tase.

It might have been there at the beginning. But it was like buying a car with no engine. That's not going to work for This is one of the reasons why people feel so great with ours is because we start pouring back in this missing antioxidants so the mitochondria can start regenerating and healing and multiplying.

And we turn your lights back on literally in your brain. So inflammation is the cause of so much aging, but we go a little further upstream. We say, well, what's causing the inflammation?

It's the damaged electron transport chain. And that's a whole nother podcast I might have to go because it's pretty fascinating. I'll tell you, the more you learn about how your body works, I never go to movies anymore because the science of us is so much more interesting.

And when you start to understand it, you would. You are so in awe of yourself and of Mother Nature and God and the universe. It's unbelievable! It is the best read ever.

So don't be afraid of what's going on in your body. Maybe just learn how it's working and then find your recipe of the natural things that will put you back in homeostasis so your bodies can heal.

Because that's what healing us really is. The good stuff that we were born with. And so spirulina and chlorella give you back some of that nutrients that you're missing.

It's like getting the best high-test gas in your car, getting a speed charger for your phone. That's what spirullina chlorola do. They speed charge you that so that can function.

So it's my delight to share my knowledge and maybe I can come back and give a master class on the mitochondria another time. 110%. I see you and I are kinder spirits.

I couldn't tell you the last time I've seen a movie because everything I do is focused on staying at the cutting edge of where science is evolving. We're just scratching the surface of what we understand.

And I love when you tied it back to SOD because our genes contain the code for SODSOD1 and the cytosol, SO2 in the mitochondria, and SO3 in extra cellular space.

These are based on oxidative signals and they're derived from amino acids, from dietary protein, and ultimately the required minerals are copper and zinc and manganese, which obviously are rich in products.

I love how you went full circle because especially literally how we open up the conversation, cancer is a hit on the mitochondria. That is what's happening with chronic disease.

It's a hit on our mitochondria and we're now recognizing the impact, the importance of supporting our Mitochondria. And ultimately, my focus of microbial medicine is now this intersection of our microbiome and our micro and mitochondrion.

So that's cool. We're going to have to share, we're gonna have co-sponsor a mini masterclass. I love everything you presented today. We are cut from the same cloth.

So we'll definitely have do a round two. And I know that we are going offer our listeners and community a special discount, which we will include in the show notes.

There's a 20% off code. Yes. For you to get started on your first energy fits. Well, it works on everything all the time. It's TBD fit. But it's not a one time only.

That way you really should, if you bought a large bag, uh, If you took 10 tablets a day, it would last you three months. And for therapeutic amounts, you know, You want 30 tablets, which is last few months, but if You took the 10 tablets and you use the TBD fit discount, 10 Tablets only cost you a dollar a Day.

So it is very affordable. and it replaces so many other things. Honestly, it's a lifeline to your mitochondria because they are the ones. We will talk.

I would like to do another geek section session on the electron transport chain because it is absolutely fascinating. If you understand something, then you're not going to be afraid of it.

Then you'll hopefully understand it better and feel more confident about Your own ability to look after yourself. That's the key And it's it starts with us because when you said about kids, you know not getting enough I practice what I preach people are surprised when I show them the amount of vegetables I eat daily But what i do give my kids is is spirulina crushed up.

They love it in smoothies They are so thankful of this. So again kudos to you. I I see that we um We definitely resonate and I appreciate your work. I see the level of detail that you go to.

Last question though, because people know how myopic I am in my approach. And I always say, I want to avoid anything that comes out of a bag, box or plastic.

Yes. So in terms of the packaging, just obviously out of curiosity, I know most supplements come in, you know, these plastic bottles, in term of packaging any sort of issue there.

Well, packaged them, the canisters are all made of cardboard. You only want one, canister are fabulous because they come with a bag and I designed them and there's a little cutout on the side.

So you open the bag, and you pour the tablets into the the cannister, then you just pour them out of the opening. And you only buy the cancer once. I mean, this could last you two or three years.

Mine at home is probably three-years-old. It's kind of mucky after three So it's very eco-friendly and you want to keep the tablets in a dark place. Try not to put them in the baggie because the light will pull the chlorophyll out.

It won't ruin, you'll still have all the other nutrients and the protein, but trying to it inside a darker container is better. The bags are made of recycled paper and there's no metal in there.

It's a certain word, I don't have it in front of me, but then you don t need to refrigerate them and same with our little single pouches They're all, it's the same material.

So there's no metal. It's recycled paper. And then we, in the canisters, we include a little travel tin and you can fit about 70 tablets in a tin. You can always put them in your handbag, your gym bag, if you didn't want to buy the tablets.

Then you could just crush them if, you want them into a smoothie. We tried our best to be very cognizant of being eco-friendly. Algae is the most eco friendly sustainable crop in releases oxygen when it's growing and reuses the water when its growing.

You get 300 times more protein per acre than animal protein. So we're doing our best to be. And the canisters are really, especially if you have family, you don't want people's different hands going into the bags and maybe they're contaminating it.

We do this also for clinics like yours, Dr. Kelly. Then you can sample people Just by shaking it into the hand, nobody touches anything. This was even before COVID.

I designed these before Covid.

Packaging, Sustainability, and Closing Remarks

So we're doing our best and we don't put them in glass because it's just so heavy to ship. It's already expensive to shift as it is. But thank you for asking about that.

When I do, so often enough I'll cycle feast famine, meaning like I go through a feast cycle and a famine cycle. So I, do a lot of fasting and ultimately I know this will break a fast, but when I got two, three days on literally, I mean some, some minerals and water and, and sometimes I incorporate some aminos, ultimately, sometimes they just use your products.

Absolutely no energy issues, none whatsoever. And while I know I'm a little bit unique in regards to I am very metabolically flexible, former very high level athlete.

So I've really kind of shaped and fine tuned my body. I don't know what works best for me. But like I said, when I use your products, there's absolutely no issue.

and I feel a genuine boost actually. in anarchy. So if you're doing intermittent fasting, it doesn't break the fast. If you are doing a three or four day water fast, I'm a purist, you know, encourage people to stick with that.

Because when you go through it, and I do have to scoot, when we go to these intermittent fasts or the longer fast what's happening is your body goes into a state of autophagy, which it's basically cleaning up and also apoptosis which is healthy cell death.

And think of an autopathy as If you have teenagers and after a week, they just keep coming in and throwing their clothes on the floor, throwing on floor.

By the end of the week you got a big mess and you can't see anything and it can also be dangerous. You got old pizza underneath that. When you're stopping eating, you are giving your mitochondria and your electron transport chain a break because there's no food coming and that they have to constantly break down and shunt around.

When your child, your teenager's room is clean, you can see stuff. Things work better. Same with your cells. When they're cleaned out, they are going to be functioning better and if they ready to die, there's something called programmed cell death, which is called apoptosis, it's not bad.

It's sort of like somebody retiring. They've been at an office for 30 years and they say, I've had a great run here, but I'm going Pass all my projects and all of my knowledge to the next generation.

Good luck, you guys, and out I go. That's what your cells do when they go through healthy cell death called apoptosis. They break up into smaller cells, but there's no inflammation.

All the DNA and the juicy mitochondria are just spread out through these things called blebs. and then they just keep regenerating. And the opposite is if you go through this inflammation, and when inflammation causes the mitochondria to expand, when they expand they burst.

That's called necrosis. All the free radicals and all the toxins that were in there get spread to their neighboring cells and that causes additional inflammation.

So you want to have this controlled cleaning and controlled cell death. to prevent that from happening. So that's amazing. We can do another class on, I know, we speak the same language.

People that love this stuff. And it's like, but honestly, anyone's listening, you will love those too. Once you get a certain level of knowledge and you'll be fascinated.

It's just the best story that never ends. You're absolutely right. The gift keeps giving and there's so much still yet to learn. I know we've we're on time here, but this has been a genuine pleasure and absolute, like I said, mini masterclass.

You definitely exceeded my expectations, especially in how thorough you are. And so I appreciate the level of detail in terms of how you put together your product, the sourcing and the benefit, obviously the efficacy that speaks for itself.

Last question that I end every episode with. Okay. If you could have one superpower, what would it be? Well, it is what I'm doing. This, I know it sounds crazy, but algae will save the world.

I am convinced it will say the word. And so my superpower is communicating that in a way that people can understand. and I like taking complex science and breaking it into understandable portions so that.

Trust me and to trust the product. So I got it. Thank you. We will include the code for the discount. Obviously everything will be in the show notes. Again, big thanks to.

The conversation today was a genuine pleasure for everyone tuning in. Please like, review, subscribe, share this with people who need to hear this message.

This is foundational. I do definitely endorse and support it. It's a product that I take, I give to my kids. Very safe, very effective. Thank you again for your time and look forward to round two in the future.

Until next time, stay healthy, Stay wealthy, my friends. Thank you for tuning in to the TBD Fit Podcast on Dr. Talks, where we unpack all things health and longevity.

If you enjoy the show, like, review, and subscribe. This allows us to have a greater reach and help others on their health, wellness journey.